

## IN THE CLAIMS

1. (currently amended) In a method of separating palladium isotopes in an electromagnetic separator having a source of ions, the improvements comprising:
  - placing of a working substance in a combined gas-discharge chamber/graphite crucible;
  - heating the working substance into a vapor;
  - ionizing the vapors with electron emission from a hot cathode;
  - forming the ionized vapors into an ionic beam with electrodes of an ion-optical system;
  - separating and focusing the ionic beam according to isotopes with a magnetic field;
  - and
  - entrapping the isotopes in receiving boxes,
  - wherein the working substance is metallic palladium and temperatures of the heating are 1580-1700°C.
2. (previously presented) In a method using ion beams of a material in a magnetic field for separating isotopes of at least a constituent of the material, the improvement wherein the material is metallic palladium.
3. (previously presented) The method according to claim 2, wherein the metallic palladium material in the vapor is obtained by heating metallic palladium to 1580-1700 degrees Centigrade.

4. (previously presented) The method according to claim 3, wherein the heating of the metallic palladium does not form a reaction product.
5. (previously presented) In a method using ion beams of a material in a magnetic field for separating isotopes of at least a constituent of the material, the improvement wherein the material consists essentially of metallic palladium.
6. (previously presented) The method according to claim 5, wherein the metallic palladium material is obtained in a vapor by heating metallic palladium to 1580-1700 degrees Centigrade.
7. (previously presented) The method according to claim 6, wherein the heating of the metallic palladium does not form a reaction product.